

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

BFN3144 – FINANCIAL DERIVATIVES

(All sections / Groups)

13 March 2020

9.00 a.m. – 11.00 a.m.

(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 pages. There are a total of 4 questions.
2. Answer **ALL** questions.
3. Marks are shown at the end of each question.

Answer all questions in the answer booklet provided.

QUESTION 1 (25 MARKS)

- (a) Discuss the advantages of using option over futures. (6 marks)
- (b) Option can be used for the purpose of managing asymmetric information. Explain how it is used by giving an example. (5 marks)
- (c) Read the information below and answer the following questions.

	We offer 15 derivatives products from the commodity, equity and financial categories.	
	Our products include:	
	7	Commodity derivatives
	4	Financial derivatives
	4	Equity derivatives

(Source: Bursa Malaysia Annual Report, 2019)

- (i) Name 2 products under commodity derivatives and 2 products under equity derivatives. (6 marks)
- (ii) Are those products under Bursa Malaysia derivatives exchange-traded or over-the-counter instruments? (4 marks)
- (iii) Compare the risk and liquidity between exchange traded and over-the-counter products. (4 marks)

QUESTION 2 (25 MARKS)

As a fund manager for FOM Asset Management Bhd, you are tracking your fund's performance to the Kuala Lumpur Composite Index (KLCI). You formed your portfolio of stocks when the KLCI stood at 1,600 points. Since then the KLCI has been very stable around that level. With current equity market sentiments, you expect the Malaysian stock market to be in bearish over the next six months. You would like to use options to protect the value of your portfolio so that your fund will perform better than the market. The following KLCI options are available:

Continued....

June 1,200 points KLCI Call options @ 70 points
 June 1,600 points KLCI Call options @ 60 points
 June 1,800 points KLCI Call options @ 50 points
 June 1,200 points KLCI Put options @ 40 points
 June 1,600 points KLCI Put options @ 50 points
 June 1,800 points KLCI Put options @ 70 points

Discuss the best strategy to protect the value of your portfolio under current market outlook.

(5 marks)

Fill in the payoff table below and draw the payoff diagram. Label the minimum and break-even points.

S _T	Position in underlying asset	Option position			Net Profit (In points)
		Payoff	Premium	Profit	
1100					
1200					
1300					
1400					
1500					
1600					
1700					
1800					
1900					
2000					

(20 marks)

QUESTION 3 (25 MARKS)

- (a) One of the assumptions under Black Scholes Option Pricing model is no dividend payment. Explain how to adjust for dividend in the model. (5 marks)

Continued....

- (b) With the information below, use Black-Scholes Option pricing model to calculate the call and put values.

Stock price, S_0 = RM 13
Strike price, X = RM 10
Interest rate, r = 3%
Maturity, T = 0.5
Variance, σ^2 = 0.25
No dividends are expected.

(16 marks)

- (c) Explain the Greek letters -Delta and Vega used in option.

(4 marks)

QUESTION 4 (25 MARKS)

- (a) A company in Australia has borrowed fixed-interest dollars in order to purchase equipment from the U.S. Its main revenue is in Australian dollar. It now expects the Australian dollar to depreciate against the USD which may bring to the higher cost of repayment. Discuss how the company can hedge its exposure. Over the life of the swap, what will the company pay and receive? (9 marks)
- (b) Discuss the purpose of using credit derivatives swap and state the three common types of credit swap. (8 marks)
- (c) In 90 days, your company will have an inflow € 15 million from your France customer. As the Chief Finance Office of a local incorporated company, you are given 4 choices to perform hedging strategy. The choices are currency forward, currency futures, currency options and currency swap. Using each alternative, describe each position you should form to reduce the risk that you face. (8 marks)

End of Page

Table: Cumulative Normal Distribution

d	$N(d)$	d	$N(d)$	d	$N(d)$	d	$N(d)$	d	$N(d)$	d	$N(d)$
-3.00	.0013	-1.58	.0571	-0.76	.2236	0.06	.5239	0.86	.8051	1.66	.9515
-2.95	.0016	-1.56	.0594	-0.74	.2297	0.08	.5319	0.88	.8106	1.68	.9535
-2.90	.0019	-1.54	.0618	-0.72	.2358	0.10	.5398	0.90	.8159	1.70	.9554
-2.85	.0022	-1.52	.0643	-0.70	.2420	0.12	.5478	0.92	.8212	1.72	.9573
-2.80	.0026	-1.50	.0668	-0.68	.2483	0.14	.5557	0.94	.8264	1.74	.9591
-2.75	.0030	-1.48	.0694	-0.66	.2546	0.16	.5636	0.96	.8315	1.76	.9608
-2.70	.0035	-1.46	.0721	-0.64	.2611	0.18	.5714	0.98	.8365	1.78	.9625
-2.65	.0040	-1.44	.0749	-0.62	.2676	0.20	.5793	1.00	.8414	1.80	.9641
-2.60	.0047	-1.42	.0778	-0.60	.2743	0.22	.5871	1.02	.8461	1.82	.9656
-2.55	.0054	-1.40	.0808	-0.58	.2810	0.24	.5948	1.04	.8508	1.84	.9671
-2.50	.0062	-1.38	.0838	-0.56	.2877	0.26	.6026	1.06	.8554	1.86	.9686
-2.45	.0071	-1.36	.0869	-0.54	.2946	0.28	.6103	1.08	.8599	1.88	.9699
-2.40	.0082	-1.34	.0901	-0.52	.3015	0.30	.6179	1.10	.8643	1.90	.9713
-2.35	.0094	-1.32	.0934	-0.50	.3085	0.32	.6255	1.12	.8686	1.92	.9726
-2.30	.0107	-1.30	.0968	-0.48	.3156	0.34	.6331	1.14	.8729	1.94	.9738
-2.25	.0122	-1.28	.1003	-0.46	.3228	0.36	.6406	1.16	.8770	1.96	.9750
-2.20	.0139	-1.26	.1038	-0.44	.3300	0.38	.6480	1.18	.8810	1.98	.9761
-2.15	.0158	-1.24	.1075	-0.42	.3373	0.40	.6554	1.20	.8849	2.00	.9772
-2.10	.0179	-1.22	.1112	-0.40	.3446	0.42	.6628	1.22	.8888	2.05	.9798
-2.05	.0202	-1.20	.1151	-0.38	.3520	0.44	.6700	1.24	.8925	2.10	.9821
-2.00	.0228	-1.18	.1190	-0.36	.3594	0.46	.6773	1.26	.8962	2.15	.9842
-1.98	.0239	-1.16	.1230	-0.34	.3669	0.48	.6844	1.28	.8997	2.20	.9861
-1.96	.0250	-1.14	.1271	-0.32	.3745	0.50	.6915	1.30	.9032	2.25	.9878
-1.94	.0262	-1.12	.1314	-0.30	.3821	0.52	.6985	1.32	.9066	2.30	.9893
-1.92	.0274	-1.10	.1357	-0.28	.3897	0.54	.7054	1.34	.9099	2.35	.9906
-1.90	.0287	-1.08	.1401	-0.26	.3974	0.56	.7123	1.36	.9131	2.40	.9918
-1.88	.0301	-1.06	.1446	-0.24	.4052	0.58	.7191	1.38	.9162	2.45	.9929
-1.86	.0314	-1.04	.1492	-0.22	.4129	0.60	.7258	1.40	.9192	2.50	.9938
-1.84	.0329	-1.02	.1539	-0.20	.4207	0.62	.7324	1.42	.9222	2.55	.9946
-1.82	.0344	-1.00	.1587	-0.18	.4286	0.64	.7389	1.44	.9251	2.60	.9953
-1.80	.0359	-0.98	.1635	-0.16	.4365	0.66	.7454	1.46	.9279	2.65	.9960
-1.78	.0375	-0.96	.1685	-0.14	.4443	0.68	.7518	1.48	.9306	2.70	.9965
-1.76	.0392	-0.94	.1736	-0.12	.4523	0.70	.7580	1.50	.9332	2.75	.9970
-1.74	.0409	-0.92	.1788	-0.10	.4602	0.72	.7642	1.52	.9357	2.80	.9974
-1.72	.0427	-0.90	.1841	-0.08	.4681	0.74	.7704	1.54	.9382	2.85	.9978
-1.70	.0446	-0.88	.1894	-0.06	.4761	0.76	.7764	1.56	.9406	2.90	.9981
-1.68	.0465	-0.86	.1949	-0.04	.4841	0.78	.7823	1.58	.9429	2.95	.9984
-1.66	.0485	-0.84	.2005	-0.02	.4920	0.80	.7882	1.60	.9452	3.00	.9986
-1.64	.0505	-0.82	.2061	0.00	.5000	0.82	.7939	1.62	.9474	3.05	.9989
-1.62	.0526	-0.80	.2119	0.02	.5080	0.84	.7996	1.64	.9495		
-1.60	.0548	-0.78	.2177	0.04	.5160						

This table shows the probability $N(d)$ of observing a value less than or equal to d . For example, as illustrated, if d is -2.4 , then $N(d)$ is .9745.